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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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HISASHI OHTANI

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03/21/2005

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EXAMINER

DIAZ, JOSE R

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 03/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/455,991	Applicant(s) OHTANI ET AL.	
	Examiner José R. Díaz	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-12, 14-16, 18, 20, 21 and 23-79 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-12, 14-16, 18, 20, 21 and 23-79 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 6-12, 14-16, 18, 20-21 and 23-79 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhang (US Pat. No. 5,922,125).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 6, 9, 24, 31, 40, 48, 55 and 64, Zhang teaches a method of manufacturing a semiconductor device, said method comprising:

forming an amorphous semiconductor film (103) on an insulating surface (11, 12) (see fig. 1B);

Art Unit: 2815

providing a metal element (101, 102, 108, 109, and 110) being capable of promoting crystallization of the amorphous semiconductor film to form a first metal element added region (101 and 102) and a second metal element added region (108 and 110);

crystallizing the amorphous semiconductor film (103) from the first metal element added region (101 and 102) and the second metal element added region (108 and 110) in parallel to the substrate (104, 105, 106, 107) to form a first crystalline portion and a second crystalline portion, respectively, in a crystalline semiconductor film (see fig. 1A and 1B, and abstract); and

patterning the crystalline semiconductor film to form at least one crystalline semiconductor island of a functional array of semiconductor islands (201) (see fig. 2), using the first crystalline portion (consider the portion the include the islands 201) while the second crystalline portion (consider the portions formed between the islands 201 and the metal element added regions 101, 102, 108, 109, 110) that is not used to form any crystalline semiconductor island of the functional array of semiconductor islands (see fig. 2),

wherein the second crystalline portion is located between the crystalline semiconductor island and the second metal element added region (consider the portions located between islands 201 and the metal element added regions 108 and 110 in fig. 2),

wherein the first metal element added region is away from the second metal element added region (please note that regions 101 and 102 are spaced apart from regions 108 and 110. See Fig. 2).

In addition, Zhang further teaches:

- With regards to claims 9 and 40, the limitation that the second metal element added region (108 and 110) is located at a peripheral edge of the group of active elements (201) (see fig. 2).
- With regards to claims 24 and 48, the limitation that the second crystalline portion extends along an entire length of the second metal element added region (consider the portions located between islands 201 and regions 108 and 110 in fig. 2).
- With regard to claims 55 and 64, the limitation that the crystalline island constitutes a TFT (see col. 5, lines 53-56).

Regarding claims 7, 32, 56 and 72-79, Zhang teaches that the metal added regions has a length extending 100 μm or more (see col. 6, lines 61-67).

Regarding claims 8, 10, 25, 33, 41, 49, 57, and 65, Zhang teaches that the metal element comprises Ni (see col. 3, lines 14-16).

Regarding claims 11-12, 26-27, 34-35, 42-43, 50-51, 58-59, and 66-67, Zhang teaches that the metal element is provided by ion implantation or by coating a solvent comprising the metal element (see col. 7, lines 19-24).

Regarding claims 14, 18, 28, 36, 44, 52, 60, and 68, Zhang teaches that the amorphous semiconductor film (103) comprises silicon (see col. 5, lines 64-65).

Regarding claims 15-16, 20-21, 29-30, 37-38, 45-46, 53-54, 61-62, 69-70, Zhang teaches that the semiconductor device includes at least one selected from the group consisting of an n-channel TFT and a p-channel TFT (see col. 3, lines 19-25 and col. 9, lines 1-3), wherein the n-channel thin film transistor has a first S value not lower than 75 mV/dec while the p-channel TFT has a second S value not lower than 75 mV/dec (see col. 13, lines 53-54).

Regarding claims 23, 39, 47, 63, and 71, Zhang teaches that the crystal growth state is controlled by the second metal element added region (108 and 110) (see figs. 1A and 2).

Response to Arguments

3. Applicant's arguments filed January 4, 2005 have been fully considered but they are not persuasive. The arguments are not persuasive since Zhang explicitly teaches the new limitation of growing crystals in directions parallel to the substrate (see abstract, and arrows (104) to (107) in figure 1B).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

Art Unit: 2815

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José R. Díaz whose telephone number is (571) 272-1727. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JRD
3/16/05


TOM THOMAS
SUPERVISORY PATENT EXAMINER